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THE CLOSED-LOOP STRIPPING TECHNIQUE APPLIED TO POTABLE WATER TO SOLVE TASTE AND ODOUR PROBLEMS.

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The occurrence of objectionable taste and odour problems in potable water is mainly a seasonal problem when not associated with industrial effluent discharges. Microbiological activity has been found to be responsible for causing earthy-musty odours in water especially in the spring and fall seasons. Two compounds identified as metabolites from microbiological activity are geosmin and 2-methylisoborneol [1,2]. Other compounds causing taste and odour problems are 2-isopropyl-3-methoxypyrazine, 2-isobutyl-3-methoxypyrazine and 2,3,6-trichloroanisole [3,4,5]. These compounds have threshold odour concentrations in the low nanogram per litre levels. Analysis at these low levels requires an alternative method to the conventional purge-and-trap technique. Such an alternative is the closed loop stripper.

Closed loop stripping (CLS) was developed by Grob in 1973 for the analysis of organic substances in potable water [6]. This technique involves recirculation of a headspace gas from 1L of water in a closed system for 2 hours. Components are stripped into the recirculating gas and adsorbed onto an activated charcoal trap. Compounds are extracted from the trap using a small amount (15uL) of solvent such as carbon disulfide or methylene chloride. An aliquot of the extract is analyzed using

high resolution gas chromatography-low resolution mass spectrometry.

Conventional CLS is limited by the fact that only a fraction of the extract is analyzed. To decrease the detection limits for geosmin and methylisoborneol, a study involving collection of the stripped components onto Tenax GC or TA or layered traps with subsequent thermal desorption of the trap directly into a GC-MS is in progress. Results from these studies will be presented.

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